

ABSTRACT OF THE DISCLOSURE

An apparatus includes a beam deflection portion for deflecting the electron beam to change an irradiation position of the electron beam; a synchronization signal generation portion for generating
5 a synchronization signal which is in synchronization with the rotation of the substrate; a controller for controlling the beam deflection portion on the basis of the synchronization signal in order to deflect the electron beam in a rotational radial direction of the substrate and in a rotational tangential direction of the
10 substrate opposite to a rotational direction of the substrate, while drawing transition is performed from one circle to another circle; and a beam cutoff portion for cutting off the irradiation of the electron beam on the substrate, for a period during the electron beam is deflected in the rotational radial direction.